

*epi*TRENDS

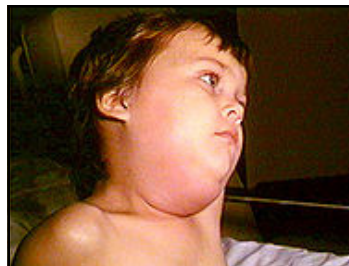
A Monthly Bulletin on Communicable Disease Epidemiology and
Public Health Practice in Washington State

Recent Mumps Activity

Vaccines are available to control a number of diseases including mumps. However, individual cases and outbreaks of vaccine-preventable conditions continue to occur. A 2006 mumps outbreak in the United States served to renew interest in mumps surveillance and resulted in a better understanding of the complexity of mumps diagnostic issues.

Mumps in the United States

Mumps is an acute viral illness characterized by inflammation and swelling of the salivary and other glands. Parotitis is the most common form of mumps, affecting 30-40% of infected persons. Other symptoms such as muscle aches, loss of appetite, headache, and low fever can also occur. Up to 20% of mumps infections are asymptomatic. Complications of mumps include orchitis, which affects up to 50% of postpubertal males, and less commonly meningitis, oophoritis, pancreatitis, deafness, and myocarditis.



Child with Mumps
Image Courtesy of CDC

Mumps became nationally notifiable in 1968 when around 152,000 cases of mumps were recorded in the country. Cases declined rapidly following vaccine licensure. In 1977, ten years after the licensing of mumps vaccine in the United States, the Advisory Committee on Immunization Practices (ACIP) recommended one dose of mumps vaccine for all children. By 1985 the number of mumps cases had dropped to about 3,000 cases. In 1989, a two-dose series for measles, mumps, and rubella vaccine (MMR) became standard in response to a resurgence of measles. Except for an outbreak from 1986-1987, when more than 20,000 mumps cases were reported, mumps cases steadily declined in the United States to 258 cases in 2004.

The disease is still endemic globally, and only 58% of World Health Organization member countries use mumps vaccine routinely. United States citizens traveling internationally should be aware of the high risk of exposure and need to be immune to mumps before traveling.

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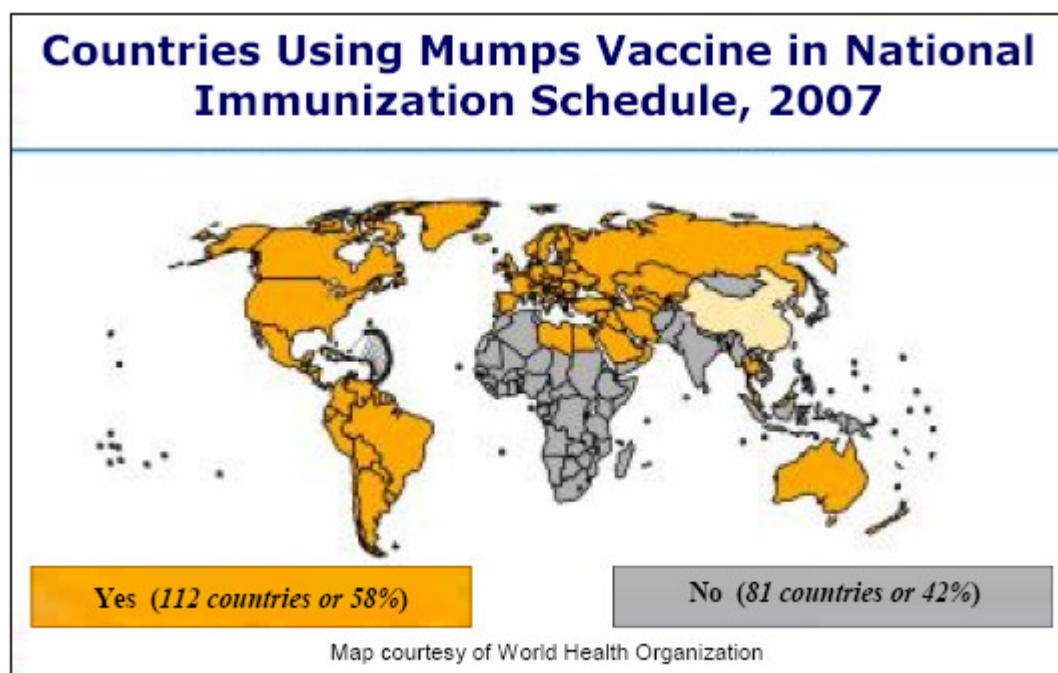


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2006 Mumps Outbreak and Lessons Learned

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After two decades of relatively few cases in the United States, an outbreak of mumps occurred in 2006. A total of 6,584 cases of mumps were reported that year, many coming from college campuses in the Midwest. Although 85% of the case-patients were residents of one of eight Midwestern states (Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, South Dakota, and Wisconsin), a total of 45 states reported mumps cases.

In contrast to the pre-vaccine era when mumps mainly affected young children, the highest incidence of mumps during the outbreak occurred in the 18-24 year old age group. Most of the cases were up to date on mumps vaccine: 63% of all cases and 84% of those 18-24 years old had received two vaccine doses. This suggests that vaccine failure likely contributed to the outbreak along with other factors such as waning immunity and high population density in the affected regions. The outbreak underscored the importance of maintaining levels of vaccine coverage that are adequate reduce transmission should mumps be introduced into a community.

Issues with the 1999 national mumps case definition also became evident during the outbreak. In 2008, Centers for Disease Control and Prevention (CDC) released an updated case definition for mumps that added criteria and changed case classifications.

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The updates include:

- The addition of the phrase “a clinically compatible illness” to address mumps infections where parotitis is absent
- The addition of “detection of mumps nucleic acid by polymerase chain reaction (PCR)” to the laboratory criteria
- The addition of “an epidemiologic link to a clinically compatible case” to the criteria for classification as a ‘probable’ case
- Modification of the criteria for classification as a ‘confirmed’ case to require that symptoms meet the mumps clinical case definition, or are clinically compatible with mumps infection
- The addition of a ‘suspect’ case definition

Consult Communicable Disease Epidemiology for assistance with the case definition or for PCR testing through Washington State Public Health Laboratories. The full case definition is available at: http://www.cdc.gov/ncphi/diss/nndss/casedef/mumps_2008.htm.

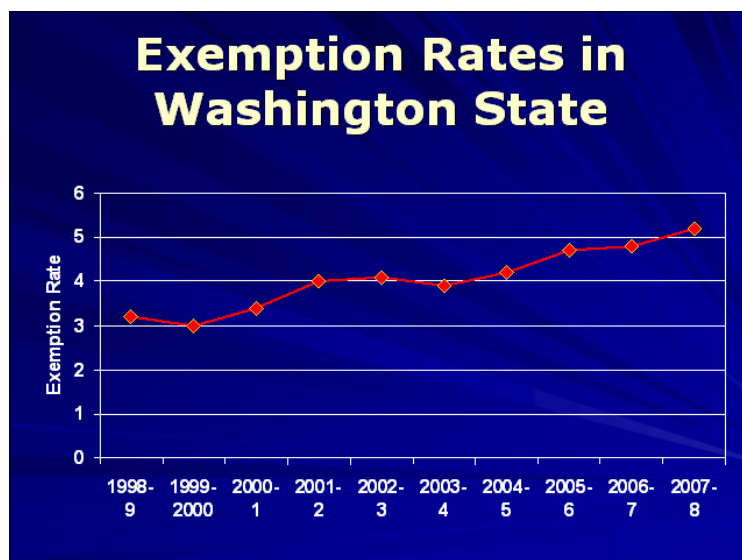
Mumps in Washington

During 1998-2005, the Washington State Department of Health (DOH) received from none up to 11 reports of mumps a year. In 2006 there were over 150 reports of possible mumps. This was due at least in part to a higher awareness of mumps with the outbreak in the Midwest. Once the CDC case definition was applied, 42 of the reports were considered either confirmed or probable mumps cases, none directly related to the outbreak in the Midwest. In 2007, 53 confirmed or probable cases were reported.

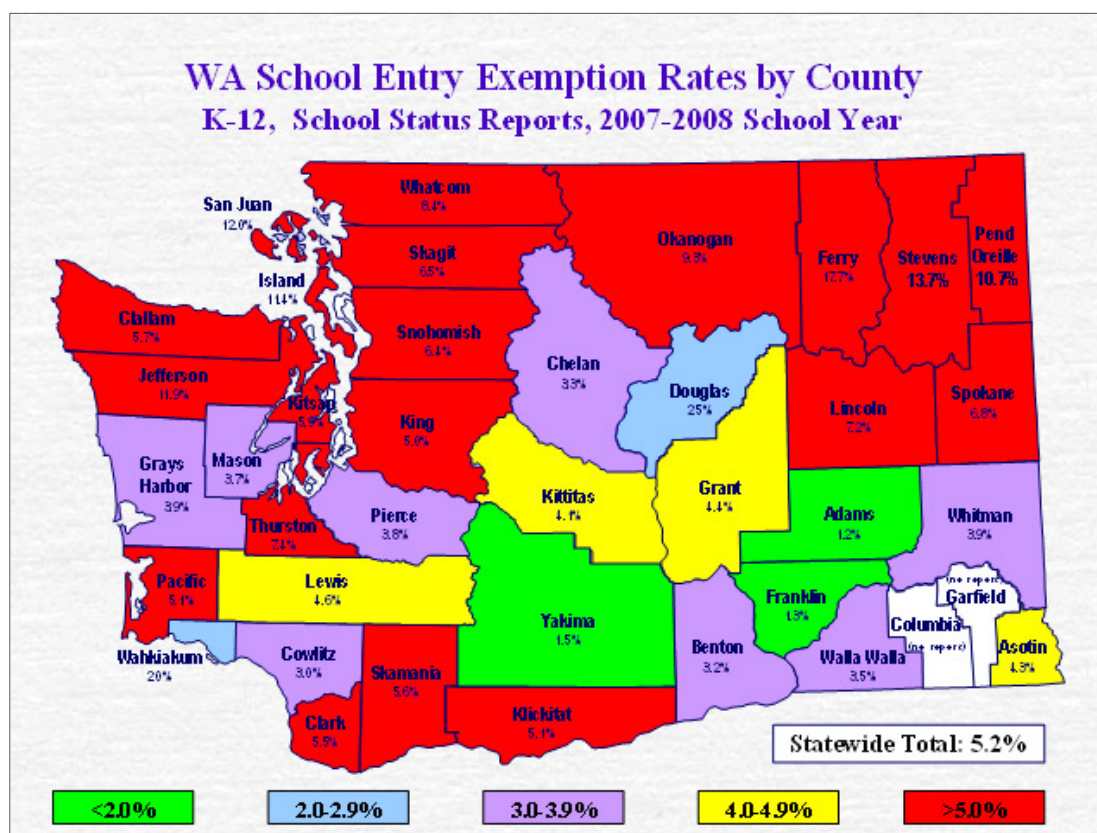
It is important to note that in both 2006 and 2007, CDC specifically requested that all cases of parotitis lasting two days or more be reported as probable cases. Previously, such cases were rarely reported. From January through November 2008, 14 confirmed or probable cases were reported to DOH using the new 2008 case definition. Of note, 29 suspect cases were also reported; these would have been considered probable cases under the 1999 mumps case definition. In 2008 there was one outbreak and two household clusters among the mumps cases. The index case in each of these groups of people did not report any outside travel during their exposure period, raising the concern that endemic transmission of mumps may possibly be occurring in Washington.

While the number of mumps cases in Washington is generally low, vaccination statistics for the state highlight the need to maintain surveillance. In Washington, immunization coverage for one or more doses of MMR is 90.5% for 19-35 month-olds, below the national average. In addition, the vaccine exemption rate for school entry has been increasing in recent years and is now over 5% statewide. Both immunization coverage and vaccine exemption rates vary widely across the state, so there are some areas that are at an even greater risk of having a mumps outbreak.

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Vaccine Exemption Rates in Washington State, 1998-2008



Resources

Centers for Disease Control and Prevention. Manual for the surveillance of vaccine-preventable diseases. Centers for Disease Control and Prevention, Atlanta, GA, 2008. Available online at <http://www.cdc.gov/vaccines/pubs/surv-manual/default.htm>.